



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,219	02/12/2002	Steven J. West	04518/00019	6185

22910 7590 04/26/2006

BANNER & WITCOFF, LTD.
28 STATE STREET
28th FLOOR
BOSTON, MA 02109-9601

EXAMINER

OLSEN, KAJ K

ART UNIT	PAPER NUMBER
----------	--------------

1753

DATE MAILED: 04/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/074,219

Applicant(s)

WEST ET AL.

Examiner

Kaj K. Olsen

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 2-9, 14 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 10-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 2-9, 14 and 15 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 and 10-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. In claim 1, it is unclear what the metes and bounds of “minimizes moisture loss or pick-up from the surroundings yet under the influence of a partial vacuum created inside the compartment, admits sufficient air” would be. This is a relative statement and one possessing ordinary skill in the art would not be able to discern whether a prior art vent structure or any subsequent vent structure would meet or infringe on the defined vent structure. In particular, applicant’s use of the term “minimizes” cannot be referring to a true minimization because a true minimized moisture loss or pickup would be to seal the vent completely so that no moisture is lost or picked up. However, because such a completely sealed vent would not meet the second part of the limitation (i.e. allowing “sufficient air”), the minimization referred to here is something other than a complete minimization (e.g. the vent tube of fig. 1 would allow for some moisture loss or pickup in comparison with a completely sealed vent). Applicant appears to

Art Unit: 1753

admit as much with the previous claim 10 where applicant previously stated that vent structure “serves to reduce the rate at which moisture can diffuse into or out of the electrolyte compartment” (emphasis added). Previous claim 12 similarly stated that the goal of the vent is to merely “retard diffusion of moisture into or out of the electrolyte compartment” (emphasis added). Hence the “minimizes” of claim 1 is a relative condition that is balanced against the admitting of “sufficient air”, which is another relative condition. Absent clear definitions of these relative terms, how one possessing ordinary skill in the art construes “minimizes” and “sufficient” depends entirely on what they consider to be a suitable minimized moisture loss or pickup and what they consider to be an allowance for sufficient air flow. Hence, the metes and bounds of claim 1 are unclear.

5. Claims 10 and 12 remain indefinite for the reasons set forth in the previous office action.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Applicant’s amendment to claim 1 has obviated the anticipation of claim 1 over Pedicini.

The examiner has thereby withdrawn all use of this teaching in view of that amendment.

8. Applicant’s amendment to claim 1 has obviated the anticipation of claims 1 and 10-12 over Vaillancourt. The examiner has thereby withdrawn all use of this teaching in view of that amendment.

Art Unit: 1753

9. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Frollini, Jr. et al (USP 4,608,148).

10. Frollini teaches a combination glass pH electrode that includes a sensing electrode 44, a reference electrode 42 possessing a standard potential, an outer tube 48 and a liquid junction 36. Frollini further discloses a inner tube 22 centrally located within the outer tube and connected by to the outer tube by a top seal 54 and a bottom seal 52 with a reference electrolyte compartment 28 located between the inner and outer tubes and the top and bottom seals having an opening 50 in the outer tube. See fig. 1 and col. 3, l. 9 through col. 4, l. 11. This opening 50 would function as a vent for the combination sensor. With respect to the outer tube having the liquid junction, fig. 1 of Frollini does not teach this (i.e. the liquid junction 36 is in the bottom seal 52. However, the embodiments of fig. 2 and 3 both show that the liquid junction (136 or 236) can be located on the outer tube (148 or 248) as well. It would appear that fig. 2 and 3 would also meet the limitations of claim 1 because they appear to show all the limitations of the claims including the sealing on both the top and bottom of the outer tube even though they give no details about the sealing. In the event that fig. 2 and 3 are deemed to not meet all the limitations of claim 1, fig. 2 and 3 establish that placing the liquid junction any number of places including on the outer tube was obvious. It would have been obvious to one of ordinary skill in the art at the time the invention was being made for Frollini to utilize the liquid junction location of fig. 2 and 3 for the sensor embodiment of fig. 1 because the substitution of one known location for the liquid junction for another known location requires only routines skill in the art.

11. With respect to that vent minimizing moisture loss or pickup while admitted sufficient air, because these two functions rely on some relative interpretation of what it means to

Art Unit: 1753

“minimize” moisture pickup and allow for the admittance of “sufficient air” (see 112 rejection above), the unspecified dimensions of the hole of Frollini would meet the claim giving the claim language its broadest reasonable interpretation. The small size of the hole of Frollini would reduce moisture loss or pickup and the hole would clearly be able to allow air flow under vacuum because it allows flow without vacuum. Applicant hasn’t defined the minimization and the admittance in such a manner that reads free of whatever the dimensions of the hole of Frollini are. In addition, claims 10 and 12 appear to further define this “minimizes” of claim 1 as being a mere reduction or retardation of the moisture loss or pickup (see 112 rejections above). Because the small hole of Frollini would reduce or retard moisture loss or pickup at least to some extent, it would thereby meet the claimed “minimizes” giving the claim language its broadest reasonable interpretation. See also the alternative rejection below.

12. With respect to the new limitation drawn to not requiring a calibration for up to two years, this limitation entirely depends on how the sensor is utilized. For example, a sensor that remains unused wouldn’t need any calibration. An operation that doesn’t require high accuracy wouldn’t need any calibration. Moreover, because the examiner is not aware of any industrial standards for when calibrations are necessary, it is unclear how this limitation further defines the claimed invention.

Claim Rejections - 35 USC § 103

13. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 1753

14. Claim 1 in the alternative is rejected under 35 U.S.C. 103(a) as being unpatentable over Frollini in view of Subsara et al (USP 4,543,175) or Marsoner et al (USP 5,160,420).

15. In the previous rejection, the examiner set forth that applicant has not defined the minimization and admittance of sufficient air with enough specificity to read free of the teaching of Frollini by itself. However, even if the examiner were to read claim 1 in a manner that did not read on the hole of Frollini, then the claimed vent system would still be obvious in view of Subsara and Marsoner. In particular, Subsara teaches the use of a sleeve 20 that can slide over the refill opening to permit the opening to be closed. See fig. 2 and col. 2, ll. 10-15. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Subsara for the refill opening and vent of Frollini so that the opening can be sealed so as to prevent electrolyte loss when the electrode is not being operated. Because this sleeve of Subsara would be capable partially covering the hole (e.g. when the seal is halfway or three-quarters of the way over the hole), the sleeve of Subsara would be capable of providing a level of sealing that would meet the claim limitations in this alternative interpretation. In other words, if the hole of Frollini were interpreted as being too large to meet the claimed vent requirements (interpreted in the alternative), a sleeve like that taught by Subsara would have been capable of partially obscuring that hole until it meant the claim limitation. Although the prior art does not disclose using this sleeve as a partial obscurant, it is unnecessary for the prior art to disclose doing so as long as the prior art were capable of providing the specified function. With respect to Marsoner, Marsoner teaches that reference electrolyte can be delivered to and released from a reference electrode via a series of sealed tubes 21 and 22 so as to automatically refill the reference electrode and prevent contamination of the electrode with sample. See fig. 2,

Art Unit: 1753

col. 4, ll. 9-14 and col. 5, l. 60 through col. 6, l. 26. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Marsoner for the electrode of Frollini so that reference electrolyte can be automatically delivered and undesirable mixing of sample and electrolyte can be avoided. With respect to the thereby claimed vent, because Marsoner utilizes narrow tubes that are sufficiently long to connect them to a source of reference electrolyte 28 or waste tank 8, they would presumably either meet the claimed vent requirement (note: applicant utilizes tubes only 10 mm long) or tubes of sufficient length to meet the claimed requirement would have been obvious.

Allowable Subject Matter

16. Claims 10-13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

17. With respect to the remaining 112 rejections, Applicant has traversed these rejections on the grounds that the Office recognizes the functional language is not in and of themselves improper. The examiner would agree, but just because functional language is oftentimes proper doesn't mean that every instance of function language is automatically proper either. In the instant case, the examiner came to the conclusion that the language utilized in claim 1 does not meet the threshold for proper functional language for the particular reasons given in the previous office action (and reproduced above).

Art Unit: 1753

18. Applicant has also added to the limitation drawn to needing no calibration for up to two years in an apparent attempt to further established the bounds of the claimed “minimizes” or “sufficient”. However, this limitation doesn’t obviate the rejection in question because the concept of when a calibration is needed is also entirely relative. If one doesn’t use the electrode for an extended period of time, one doesn’t “need” any calibration. If one doesn’t desire a high accuracy, then one also doesn’t “need” very frequent calibrations. The examiner is unaware of any industrial standard for calibrations of combination pH electrodes or for reference electrodes themselves. Applicant gives the example in the arguments that the instant invention had a change in reference potential of 1.5-4.5 mV over two years, and thereby deems that an acceptable level of drift for a reference electrode. Others in the art might consider that to be too high a drift for the accuracy levels they desire. Hence, applicant’s attempt to buttress the interpretation of the “minimizes” and “sufficient” with further completely relative limitations doesn’t render these limitations any more definite.

19. Applicant draws the examiner’s attention to claim 12 of Pedicini, which has a limitation drawn to a hole being “sufficiently small”, indicating that a functional language can be adequate to provide clear metes and bounds for a claim. However, as stated above, just because functional language is sometimes appropriate doesn’t mean that it is always appropriate. Furthermore, the issues with claim 1 of the instant invention isn’t drawn to the appropriateness of the term “sufficient” per se, but rather to applicant’s combination of “minimizes” and “sufficient” as an attempt to define a contribution over the prior art. Note that Pedicini’s claim 12 (a dependent claim) doesn’t rely on any interpretation of “sufficient” to define a contribution over the prior art (claim 1 already did), unlike the instant invention’s attempt to define over the prior art via a

Art Unit: 1753

combination of these “minimizes” and “sufficient” limitations. Furthermore, one of the main problems with applicant’s functional language isn’t its functionality per se, but rather its confusing use of terms. In particular, applicant’s “minimizes” isn’t actually a minimum at all. A sealed vent would be an actual minimum. Rather, the applicant’s “minimizes” is some relative quantity that provides for low level of moisture loss or pickup while providing for sufficient air flow under vacuum.

20. With respect to the art rejection, the examiner has withdrawn the rejections relying on Pedicini and Vaillancourt because they do not meet applicant’s amended claim 1. Hence, the arguments concerning these teachings are moot.

21. With respect to Frollini, applicant urges that the dimensions of the unspecified hole of the electrode would not meet the applicant’s claim language drawn to the electrode requiring no calibration for two years. However, as the examiner discussed above both in the rejection and in the 112 arguments, it is unclear how this further defines the invention. Whether or not one “needs” a calibration is entirely dependent on how the sensor is used (or not used) or what one considers to be an acceptable level of calibration or frequency of calibration.

22. Applicant traverses the alternative rejection of Frollini in combination with either Subsara or Marsoner by reciting a BPAI decision that states that the references must expressly or impliedly suggest the claimed combination. However, applicant appears to be confusing two different issues here. The BPAI decision concerns whether one would combine two different references. The examiner believes the examiner established that with the last four lines of p. 7 and p. 8, ll. 12-15 of the previous office action. In particular, it would have been obvious to utilize either the automatic refill system of Marsoner or the sealable opening of Subsara for the

Art Unit: 1753

reasons set forth in the previous office action (reprinted above). This obviousness was rooted in the suggestions of the prior art. What the applicant is objecting to was the next step taken by the examiner that once you had the automatic refill system of Marsoner or the slidable seal of Subsara, one would be capable of meeting the claim limitation even if the reference do not disclose doing so. The issue of whether the prior art, once combined, would be capable of meeting a claim limitation is not an issue that the cited BPAI decision addressed.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The

Art Unit: 1753

examiner can normally be reached on Monday through Thursday from 5:30 A.M. to 3:00 P.M. and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AU 1753
April 20, 2006



KAJ K. OLSEN
PRIMARY EXAMINER